As apparent from the naked assertion regarding the "determining a randomness of the idle intervals", the Examiner has ignored the explicit teachings of the specification.

The specifications provides <u>explicit details</u> on pages 1-2 as to the operation of the Truncated Binary Exponential Backoff (TBEB) algorithm by media access controllers (MACs) for collision mediation in half-duplex networks. For example, the specification describes on page 2, lines 1-9:

> The station computes a collision backoff interval as a randomized integer multiple of a slot time interval, and attempts retransmission after the collision backoff interval. The station will attempt to transmit under the truncated binary exponential algorithm a maximum of sixteen times.
>
> The collision backoff interval is calculated by selecting a random number of slot times from the range of zero to $2^j - 1$. For example, if the number of attempts j=3, then the range of randomly selected number of slot times is [0,7]; if the randomly-selected number of slot times is four, then the collision backoff interval will be equal to four slot time intervals. According to Ethernet protocol, the maximum range of randomly selected slot times is $2^{10} - 1$.

The specification then describes the need for testing devices to ensure that they do not unfairly capture the network medium due to not satisfying the requirement of selecting the slot times *randomly*. As described on page 3 of the specification:

> However, operational testing of network devices having a media access controller may be insufficient for <u>adequately testing the randomness of the TBEB algorithm</u> implemented within the media access controller. In particular, conventional testing schemes of connecting a network device under test to a network emulator are incapable of determining whether the MAC within the device under test <u>provides a reliable random selection of slot times</u>, as required under IEEE 802.3; hence, an insufficiently tested network device that is deployed in a network <u>may over time develop a bias for selecting lower numbers of slot times</u> (and unfairly capture the medium), or <u>a bias for selecting high numbers of slot times</u> (resulting in a relative inability to successfully arbitrate with other devices during collision mediation).

The specification specifies on page 3, lines 12-13 that "[t]here is a need for an arrangement that ensures that a network device under test reliably complies with the randomness requirements of the IEEE 802.3 TBEB algorithm". The specification then describes at page 3, lines 25-27 that "the identified time intervals can be used to determine <u>whether sufficiently random numbers are generated for *collision mediation*</u>

according to the IEEE 802.3 TBEB algorithm."

Hence, one of ordinary skill in the art would recognize that the claimed recitation of "determining a randomness of the idle intervals", when properly construed *in view of the specification*, simply means being able to distinguish between: (1) idle intervals that exhibit a bias for selecting <u>lower numbers</u> of slot times *during collision mediation* (resulting in unfairly capturing the medium); (2) idle intervals that exhibit a bias for selecting <u>higher numbers</u> of slot times *during collision mediation* (resulting in an inability to arbitrate for the medium); and (3) idle intervals that <u>neither</u> exhibit a bias for selecting lower numbers of slot times nor a bias for selecting higher numbers *during collision mediation* (resulting in fair arbitration according to the TBEB algorithm).

Hence, the claimed "determining a randomness of the idle intervals" simply classifies the idle intervals as "not random" (due to a bias for selecting higher or lower numbers), or "random" (due to neither a bias for selecting higher numbers nor a bias for selecting lower numbers).

The above interpretation also is consistent with the plain meaning of the term "randomness". Webster's New World Dictionary (3d. College Ed.) (Attached as Exhibit 1) defines on page 1112 random as "of statistical sample selection in which all possible samples have equal probability of selection".

Fig. 4A illustrates a logic analyzer that determines MAC slot times resembling a <u>random distribution</u> of slot times for collision delay intervals selected by a MAC over time during collision mediation. In other words, Fig. 4A illustrates a "statistical sample selection in which all possible samples have equal probability of selection".

In contrast, Fig. 4B and Fig. 4C illustrate that a logic analyzer determines MAC slot times resembling respectively a <u>low distribution</u> and a <u>high distribution</u> equating to a random number generator within a MAC that is overly aggressive and a MAC that tends to lose collision mediation. The specification clearly describes the determination of randomness, i.e., if a distribution of slot times is a random distribution of slot times, a low distribution of slot times and a high distribution of slot times. In other words, Figs. 4B and 4C illustrate a "statistical sample selection in which all possible samples" <u>do not</u> have an equal probability of selection."

One having ordinary skill in the art would recognize that the claimed feature of

"determining a randomness of idle intervals", simply classifies the idle intervals as "not random" (due to a bias for selecting higher or lower numbers), or "random" (due to neither a bias for selecting higher numbers nor a bias for selecting lower numbers). No further analysis is necessary.

Hence, the Examiner's specious arguments that "it is impossible to compare the measurement results to the Fig. 4 A-C and determine if the results are random" demonstrates a remarkable disregard of basic fundamentals of statistics: the Examiner is essentially asserting that Figs. 4A-C demonstrate the same "statistical sample selection in which all possible samples have equal probability of selection"!.   Unlike Figure 4A, however, Figures 4B and 4C demonstrate a bias (i.e., a non-random distribution).

Regarding claims 2, 11, and 17, "loopback mode", page 6, line 30 et seq. specifies:

> The physical layer transceiver 62 is configured in a loopback mode for simultaneous transmission and reception of each attempted transmission of the data packet. Hence, each data packet transmitted by the PHY 62 onto the loopback medium 64 is automatically sensed as a colliding data packet, causing the MAC 34 to halt transmission and begin collision mediation.

Hence, loopback simply means that the transmitting line is tied to the receiving line, demonstrated by reference numeral 64 in Figure 3. The Official Action fails to identify how this description in the specification is in any way deficient.

Regarding claims 3, 6, 8, 12, 15, and 18, the "exposed media independent interface" simply refers to the fact that the MII is available for connection of a logic analyzer probe:

> The physical layer transceiver 46 has an exposed media independent interface 48, enabling connection of a logic analyzer 50 to selected lines of the exposed MII 48. In particular, the logic analyzer 50 is configured for detecting a carrier sense signal (CRS) on the exposed MII 48 generated by the PHY 46 based on detected activity on the network medium 38.

(Page 5, lines 9-13)

> The illustrated system 60 is usable if the MAC under test 34 has an exposed MII 48 that can be used by the logic analyzer 52 for monitoring the assertion of a carrier sense signal (CRS).

(Page 6, lines 27-28).

The Official Action fails to identify how this description in the specification is in any way deficient.

"In rejecting a claim under the second paragraph of 35 USC 112, it is incumbent on the examiner to establish that one of ordinary skill in the pertinent art, when reading the claims in light of the supporting specification, would not have been able to ascertain with a reasonable degree of precision and particularity the particular area set out and circumscribed by the claims." Ex parte Wu, 10 USPQ2d 2031, 2033 (Bd. Pat. App. Int. 1989) (citing In re Moore, 169 USPQ 236 (CCPA 1971).

The Examiner has provided no rational basis for rejecting the claims under §112, second paragraph. As demonstrated above, one skilled in the art would have no difficulty whatsoever in ascertaining the scope of the claims. For these and other reasons, the rejection under §112, second paragraph should be withdrawn.

The rejection under §112, first paragraph is traversed. In view of the foregoing, one skilled in the art simply needs to determine whether the idle intervals demonstrate a bias toward lower numbers (Fig. 4B), or higher numbers (Fig. 4C) that would result in an unfair arbitration of the media access controller. The specification need not specify precise statistical parameters to define the specific threshold for whether a given distribution is deemed random, as such parameters are well within the scope of reasonable experimentation.

As stated in §2164.08 of the MPEP (page 197, Rev. 2, May 2004):

The Federal Circuit has repeatedly held that "the specification must teach those skilled in the art how to make and use the full scope of the claimed invention without `undue experimentation'." In re Wright, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). Nevertheless, not everything necessary to practice the invention need be disclosed. In fact, what is well-known is best omitted. In re Buchner, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991). All that is necessary is that one skilled in the art be able to practice the claimed invention, given the level of knowledge and skill in the art. Further the scope of enablement must only bear a "reasonable correlation" to the scope of the claims. See, e.g., In re Fisher, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970).

As apparent from the foregoing, the Examiner has failed to establish a prima facie case under §112, first paragraph. For these and other reasons, the rejection should be withdrawn.

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In view of the above, it is believed this application is in condition for allowance, and such a Notice is respectfully solicited.

To the extent necessary, Applicant petitions for an extension of time under 37 C.F.R. 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including any missing or insufficient fees under 37 C.F.R. 1.17(a), to Deposit Account No. 50-0687, under Order No. 95-379, and please credit any excess fees to such deposit account.

Respectfully submitted,
MANELLI DENISON & SELTER PLLC

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Customer No. 20736
Date: January 27, 2005

Webster's New World Dictionary®

OF AMERICAN ENGLISH

VICTORIA NEUFELDT

Editor in Chief

DAVID B. GURALNIK

Editor in Chief Emeritus

in which all the rooms are on one floor,' usually with a garage attached

Ran·chi (rän'chē) city in S Bihar, NE India: pop. 500,000

☆**ranch·man** (ranch'mən) *n., pl.* **-men** (-mən) a person who owns or works on a ranch

☆**ran·cho** (ran'chō, rän'-) *n., pl.* **-chos** [AmSp, small farm < Sp, small farm, group who eat together, mess < *ranchear*, to build huts < Fr (*se*) *ranger*, to make room < *ranger*: see RANGE] 1 a hut or group of huts for ranch workers 2 RANCH

Ran·cho Cu·ca·mon|ga (ran'chō kōō'kə män'gə) [< prec. + Shoshonean *kukamonga*, sandy place] city in S Calif., near San Bernardino: pop. 101,000

ran·cid (ran'sid) *adj.* [L *rancidus* < *rancere*, to be rank] 1 having the bad smell or taste of stale fats or oils; spoiled 2 repugnant — **ran·cid'i|ty** (-sid'ə tē) or **ran'cid·ness** *n.* —**ran'cid|ly** *adv.*

ran·cor (ran'kər) *n.* [ME *rancour* < OFr *rancor* < LL, rankness, in LL(Ec), rancor < L *rancere*, to be rank] a continuing and bitter hate or ill will; deep spite or malice: Brit., etc. sp. **ran'cour** —**ran'cor·ous** *adj.* —**ran'cor·ous|ly** *adv.*

rand¹ (rand) *n.* [ME *rande*, border, strip < OE *rand, rond*, brink, shield, akin to ON *rönd*, shield rim, OHG *rant*, shield boss < IE base *rem-*, to support > RIM] 1 [Brit.] an edge, border, or margin, as the unplowed strip around a field 2 a leather strip attached to the back of a shoe sole to level it before the heel is put on

rand² (rand, ränd, ränt) *n., pl.* **rand** [Afrik, orig., shield < Du, akin to OE *rand*: see prec.] the basic monetary unit of South Africa: see MONEY, table

Rand (rand), **the** WITWATERSRAND

Ran·dal or **Ran·dall** (ran'dəl) [< OE *Randwulf* (or ON *Ranthulfr*) < *rand*, shield (see RAND¹) + *wulf*, WOLF] a masculine name

R & B or **r & b** rhythm and blues

R & D research and development

Ran|ders (rän'ərs) seaport in NE Jutland, Denmark: pop. 61,000

Ran·dolph (ran'dôlf') [ML *Randulfus* < OE *Randwulf*: see RANDAL] 1 a masculine name 2 John 1773-1833; U.S. statesman & orator

ran·dom (ran'dəm) *n.* [ME *randoun* < OFr *randon*, violence, speed (in *a randon*, violently) < *randir*, to run violently < Frank *rant*, a running, akin to OHG *rinnan*, to RUN] impetuous and haphazard movement: now only in **at random**, without careful choice, aim, plan, etc.; haphazardly —*adj.* 1 lacking aim or method; purposeless; haphazard 2 not uniform; esp., of different sizes: said of stones, etc. in certain types of masonry 3 *Statistics* of statistical sample selection in which all possible samples have equal probability of selection — **ran'dom|ly** *adv.* —**ran'dom·ness** *n.*

SYN.—**random** applies to that which occurs or is done without careful choice, aim, plan, etc. [a *random* remark]; **haphazard** applies to that which is done, made, or said without regard for its consequences, relevance, etc. and therefore stresses the implication of accident or chance [a *haphazard* selection of books]; **casual** implies a happening or seeming to happen by chance without intention or purpose and often connotes nonchalance, indifference, etc. [a *casual* acquaintance]; **desultory** suggests a lack of method or system, as in jumping from one thing to another [his *desultory* reading in the textbook]; **chance** emphasizes accidental occurrence without prearrangement or planning [a *chance* encounter] —ANT. **deliberate**

☆**ran|dom-ac|cess** (ran'dəm ak'ses) *adj.* designating or of a computer memory that allows data to be accessed directly and does not require following a sequence of storage locations

ran·dom·ize (-īz') *vt.* **-ized', -iz'ing** to select or choose (items of a group) in a random order to obtain an unbiased result, often by using a table of random numbers —**ran'dom|i·za'tion** *n.*

random variable *Statistics* a variable whose values are determined independently according to a probability distribution

random walk *Math.* a sequence of movements in which the direction of each successive move is determined entirely at random

R & R 1 *Mil.* rest and recuperation (leave): also **R and R** 2 rest and relaxation (or recreation) 3 rock-and-roll: also **r & r**

ran|dy (ran'dē) *adj.* [prob. < *rand*, dial. var. of RANT + -Y²] 1 [Chiefly Scot.] coarse; crude; vulgar 2 sexually aroused; amorous; lustful —*n., pl.* **-dies** [Scot.] a vulgar, quarrelsome woman; shrew

rang (raŋ) *vi., vt. pt. of* RING¹

range (rānj) *vt.* **ranged, rang'ing** [ME *rangen* < OFr *ranger*, var. of *rengier*, to arrange in a circle, row (> ME *rengen*) < *renc* < Frank *hring*, akin to OE, OHG *hring*, RING²] 1 to arrange in a certain order; esp., to set in a row or rows 2 to put into the proper class or classes; systematize 3 to place with others in a cause, party, etc. [to *range* oneself with the rebels] 4 to put (a gun, telescope, etc.) in a line with the target or object, at a proper angle of elevation; train 5 [Now Rare] to make level or even 6 to travel over or through; roam about [to *range* the woods] 7 to travel or move along [to *range* the coastline] ☆8 to put out (cattle, etc.) to graze on a range 9 to arrange (the anchor cable) in even rows on deck —*vi.* 1 to extend, reach, or lie in a given direction or in a row [hills *ranging* toward the south] 2 to wander about; roam 3 to move about an area, as in hunting [dogs *ranging* through the woods] 4 to have a specified range [a gun that *ranges* five miles] 5 to vary between stated limits [children *ranging* in age from 5 to 12] 6 *Biol.* to be native to a

studies] 8 full extent of pitch, from highest to lowest tones, o voice, instrument, composition, etc. 9 a wandering or roaming a a large, open area of land over which livestock can wander and gr 11 the limits of possible variations of amount, degree, etc. [a w *range* of prices] 12 a unit for cooking typically including an ov and surface heating units usually operated by gas or electricity a in U.S. public surveying, a strip of land between two meridian li six miles apart, constituting a row of townships 14 *Biol.* the reg to which a plant or animal is native 15 *Math.* the set of all disti values that may be taken on by a given function 16 *Statistics* difference between the largest and smallest values in a sample _ *adj.* of a range, or open grazing place

SYN.—**range** refers to the full extent over which something is perceiva effective, etc. [the *range* of his knowledge]; **reach** refers to the furtl limit of effectiveness, influence, etc. [beyond the *reach* of my understa ing]; **scope** implies considerable room and freedom of range, but wit prescribed limits [does it fall within the *scope* of this dictionary?]; cc **pass** also suggests completeness within limits regarded as a circumfere [he did all within the *compass* of his power]; **gamut**, in this connecti refers to the full range of shades, tones, etc. between the limits of sor thing [the full *gamut* of emotions]

range finder any of various instruments for determining the distaı of a target or object from an observer, or from a gun, camera, e also **range'find'|er** *n.*

Range·ley Lakes (rānj'lē) [after an early owner of the regic chain of lakes in W Me. & NE N.H.

rang|er (rān'jər) *n.* [ME *raunger*, a forest officer: see RANGE] 1 (who ranges; a wanderer 2 *a)* any of a group of mounted troops patrolling a region ☆*b)* [*often* R-] any of a group of soldiers, traiı for raiding and close combat 3 *a)* in England, the chief official c royal park or forest ☆*b)* in the U.S., a warden who patrols gove ment parks and forests

Ran·goon (ran gōōn', raŋ-) *old name of* YANGON

rang|y (rān'jē) *adj.* **rang'i·er, rang'i·est** 1 able or inclined to raı about ☆2 long-limbed and slender [rangy cattle] ☆3 having open range; spacious —**rang'i·ness** *n.*

ra|ni (rä'nē) *n.* [Hindi *rānī* < Sans *rājñī*, fem. of *rājan*: see RAJAH j India, the wife of a rajah or a woman who is a queen or princess her own right: also sp. **ra'nee**

ra·nid (rā'nid, ran'id) *n.* [< ModL Ranidae < L *rana*, a frog] any (large family (Ranidae) of frogs having teeth in the upper jaw

rank¹ (raŋk) *n.* [MFr *renc* < OFr *ranc, renc*: see RANGE] 1 a rı line, or series 2 an orderly arrangement 3 a social division or clа stratum of society [people from all *ranks* of life] 4 a high positior society; high degree; eminence [a person of *rank*] 5 an official grа or position [the *rank* of captain] 6 a relative position, usually i: scale classifying persons or things; grade; degree [a poet of the fi *rank*] 7 any of the rows of squares on a chessboard extending fr side to side, perpendicular to the files 8 *Mil. a)* a row of soldiı vehicles, etc. placed side by side, or abreast of one another (cf. Fı *n.* 3) *b)* [*pl.*] the body of soldiers of an army, as distinguished fr the officers [to rise from the *ranks*] 9 *Music* STOP (*n.* 9a) —*vt.* 1 place in a rank or ranks 2 to assign a certain rank, or position, ☆3 to have a higher rank than; outrank —*vi.* 1 to hold a cert rank, or position [to *rank* third on a list] 2 [Archaic] to form a rа or move in ranks —☆**pull (one's) rank on** [Slang] to take advantа of one's military rank in enforcing commands or one's high positʾ or seniority in making demands on (a subordinate) —**rank and ı** 1 the body of soldiers of an army, as distinguished from the offic 2 the common people, as distinguished from leaders or officials

rank² (raŋk) *adj.* [ME *ranke* < OE *ranc*, strong, proud, akin MLowG *rank*, slender, erect, long and thin < IE base *reĝ-*, put order, stretch out > RIGHT] 1 growing vigorously and coarse overly luxuriant [rank grass] 2 producing or covered with a luxı ant crop; extremely fertile 3 strong and offensive in smell or taı rancid 4 in bad taste; coarse 5 complete; utter [rank deceit] [Obs.] in great heat —**rank'|ly** *adv.* —**rank'ness** *n.*

Ran|ke (rän'kə), **Leo·pold von** (lā'ō pōlt' fôn) 1795-1886; Ger. his rian

rank|er (raŋ'kər) *n.* [Brit., etc. (exc. Cdn.)] 1 a soldier in the ranks a commissioned officer promoted from the ranks

Ran·kine (raŋ'kin) *adj.* [after Wm. J. M. *Rankine* (1820-72), S physicist] designating or of an absolute-temperature scale in wh a measurement interval equals a Fahrenheit degree and in which is equal to -459.67°F, so that the freezing point of water is 491.67

Ran|kine-cy|cle engine (-sī kəl) [see prec.] a type of steam eng involving a continuous cycle of vaporization of liquid and conden tion back to liquid in a sealed system: developed experimentally use in automobiles to reduce polluting emissions, utilize cheaı fuels, etc.

rank·ing (raŋ'kiŋ) *adj.* ☆1 of the highest rank [the *ranking* offic ☆2 prominent or outstanding [a *ranking* composer] —*n.* 1 the or an instance of listing persons or things in order of importaı achievement, quality, etc. 2 such a listing

ran·kle (raŋ'kəl) *vi., vt.* **-kled, -kling** [ME *ranclen* < OFr *ranclei raoncle, draoncle*, a fester, ulcer < ML *dracunculus* < L, dim. *draco*, DRAGON] 1 orig., to fester; become or make inflamed 2 cause or cause to have long-lasting anger, rancor, resentment, ı [their indifference *rankled* him]

ran·sack (ran'sak') *vt.* [ME *ransaken* < ON *rannsaka* < *rann*, hoı (akin to OE *ærn*, Goth *razn* < IE base *(e)re-*, to REST¹) + *-saki sœkja*, to SEEK] 1 to search thoroughly; examine every part oſ searching 2 to search through for plunder; pillage; rob —**raı sack'er** *n.*

ran·som (ran'səm) *n.* [ME *raunson* < OFr *raençon* < L *redemp*ː REDEMPTION] 1 the redeeming or release of a captive or of seiː property by paying money or complying with other demands